

Notice of Allowability

Application No.

09/384,504

Examiner

Samuel Broda

Applicant(s)

MARSHALL ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants' Amendment received on 24 August 2004.
2. ☒ The allowed claim(s) is/are 1-3,5-7,9-11 and 13-17.
3. ☒ The drawings filed on 3 May 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |



**SAMUEL BRODA, ESQ.
PRIMARY EXAMINER**

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1. This communication is in response to Applicants' Amendment received on 24 August 2004. Claims 16 and 17 were amended; claims 1-3, 5-7, 9-11, and 13-17 are pending.

Reasons for Allowance

2. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

- (1) the "PathMill" timing simulator along with a hierarchical analysis of RC networks and includes generation of 'gray box' and 'minichip' block abstractions that contain a physically accurate description of latches and blocks (McDonald et al, "Timing Analysis for the PA-8000");
- (2) the performance of a hierarchical analysis as part of a power estimation using the SPECS simulator combined with a defined set of "power points" (Shepard et al, "Design Methodology for the S/390 Parallel Enterprise Server G4 Microprocessors"); and
- (3) the partitioning of circuits in portions modeled at a transistor level using SPICE with the remaining circuit portions modeled using analog HDL (Li et al, "Optimization of Analog Modeling and Simulation").

- 2.1 Applicants' first set of claims consists of claims 1-3 and 9-11.

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Independent claim 1 is directed to a computerized method for use in simulating an operation of an electronic system; independent claim 9 is the corresponding computer-readable memory claim.

Each independent claim identifies the distinct features of: “generating an approximate mathematical model of the timing of a remaining portion of said system, said model being based upon hierarchical analysis of said remaining portion” and “using both said physically-accurate description and said approximate model to simulate the timing operation of said system.”

Because the closest prior art does not appear to teach or suggest simulating a timing operation based on the combination of a physically-accurate description of one portion of the system and a hierarchical analysis of the remaining portion, claims 1-3 and 9-11 are deemed allowable.

2.2 Applicants' second set of claims consists of claims 5-7.

Independent claim 5 is directed to a computerized system for use in simulating an operation of an electronic system.

This independent claim identifies the distinct features of: “said first model including only hierarchical analysis mathematical functions estimating timing operation of said electronic system” and “said modeling engine modifying said first model to include both at least one hierarchical analysis mathematical function estimating timing operation of a portion of said electronic system and a physically-accurate description of another portion of said electronic system.”

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This claim identifies the distinct feature of: “a modeling engine, responsive to dividing said system into said first part and said second part, that first models said first part of said system by a physically accurate description of said first part of said electronic system to produce a first model, said modeling engine secondly developing a second model of said second part of said electronic system by including only hierarchical analysis approximate mathematical functions estimating operation of said second part of said electronic system.”

Because the closest prior art does not appear to teach or suggest simulating an operation based on the combination of a physically-accurate description of one part of the system and a hierarchical analysis of a second part, claim 14 is deemed allowable.

2.5 Applicants' fifth set of claims consists of claim number 16.

Independent claim 16 is directed to a computerized system for use in simulating an operation of an electronic system.

This claim identifies the distinct features of: “means for generating a physically-accurate description of a first portion of said system, said physically-accurate description comprising actual physical characteristics of said first portion” and “means for generating an approximate mathematical model of a remaining portion of said system, said model being based upon hierarchical analysis of said remaining portion.”

Because the closest prior art does not appear to teach or suggest simulating an operation based on the combination of a physically-accurate description of one portion of the system and a hierarchical analysis of a remaining portion, claim 16 is deemed allowable.

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Because the closest prior art does not appear to teach or suggest simulating a timing operation based on the combination of a physically-accurate description of one portion of the system and a hierarchical analysis of another portion, claims 5-7 are deemed allowable.

2.3 Applicants' third set of claims consists of claims 13, 15, and 17.

Independent claim 13 is directed to a computerized method for use in simulating an operation of an electronic system; independent claim 15 is the corresponding computer-readable memory claim and independent claim 17 is the corresponding system claim.

Each independent claim identifies the distinct features of: “generating, in response to said dividing, a physically-accurate description of said first portion of said system, said physically-accurate description comprising actual physical characteristics of said first portion” and “generating, in response to said dividing, an approximate mathematical model of said second portion of said system, said model being based upon hierarchical analysis of said remaining portion.”

Because the closest prior art does not appear to teach or suggest simulating an operation based on the combination of a physically-accurate description of one portion of the system and a hierarchical analysis of the remaining portion, claims 13, 15, and 17 are deemed allowable.

2.4 Applicants' fourth set of claims consists of claim number 14.

Independent claim 14 is directed to a computerized system for use in simulating an operation of an electronic system.

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3. Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (571) 272-2100.



SAMUEL BRODA, ESQ.
PRIMARY EXAMINER